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MRSA-colonized persons' and healthcare personnel's experiences of patient—professional interactions in and responsibilities for infection prevention in Sweden

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KEYWORDS
Infection prevention;
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Responsibility

Summary
Background: Patient—professional interactions and adherence to infection control measures are central to the quality of care and patient safety in healthcare. Persons colonized with methicillin-resistant *Staphylococcus aureus* (MRSA) describe insufficient support and unprofessional behavior among healthcare personnel.
Methods: A descriptive qualitative study was conducted to investigate managers', physicians', registered nurses' and MRSA-colonized persons' experiences of patient—professional interactions in relation to and responsibilities for infection prevention in the care of colonized patients. Five persons with MRSA colonization and 20 healthcare personnel employed within infection, hematology, nephrology or primary healthcare settings participated. The data were collected using open-ended semi-structured individual interviews with the MRSA-colonized persons and semi-structured focus group interviews with the healthcare personnel.

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Results: The participants perceived MRSA as an indefinable threat and described that the responsibility for infection prevention is important, but such adherence was a neglected and negotiable issue. The described actions that were acknowledged as unprofessional and inappropriate adherence to infection prevention resulted in stigmatized patients.
Conclusion: Colonized persons' and healthcare personnel's understanding of MRSA determines whether the personnel's behavior is perceived as proper or improper. Individual responsibility for patient—professional interactions in relation to MRSA colonization and adherence to infection control measures should be more stringent.

Introduction

Healthcare-associated infections and antimicrobial resistance constitute major challenges in healthcare settings worldwide and are seen as core patient safety issues [1,2]. The prevalence of antimicrobial resistant bacteria, such as methicillin-resistant *Staphylococcus aureus* (MRSA), differs across countries [2] but has been shown to be low in Northern Europe [3—5]. In the UK and the US, the prevalence of MRSA has decreased during recent years [2,6]. The trend in Sweden is the opposite [4,7], with an increase from 1580 cases in 2010 to 2467 cases in 2013. The total prevalence remains low at approximately 1% of invasive cases [4].

To limit the spread of MRSA and other healthcare-associated infections, healthcare personnel must adhere to infection control measures [1,8]. Such adherence and healthcare personnel's knowledge of MRSA has been described as deficient [9,10]. MRSA-colonized persons describe unprofessional behavior among healthcare personnel [11—13]. The low prevalence of MRSA in Sweden [4] implies that healthcare personnel do not regularly care for patients colonized with MRSA. This fact, in conjunction with healthcare personnel's deficient knowledge of MRSA [10], constitutes a problem for ensuring patient safety. Joint participation at all levels in the healthcare personnel hierarchy [14] is acknowledged to maintain safety for MRSA-colonized patients and for healthcare personnel in patient—professional interactions. The study objective was to investigate MRSA-colonized persons', registered nurses' (RNs), physicians' and managers' experiences of patient—professional interactions in relation to and responsibilities for infection prevention in the care of MRSA-colonized patients.

Materials and methods

The consolidated criteria for reporting qualitative research (COREQ) 32-item checklist for interviews and focus groups were consulted to explicitly improve the quality in reporting the study design [15].

Design

A qualitative descriptive study design was employed [16].

Participants

A purposive sample of MRSA-colonized persons and healthcare personnel was recruited from a county in central Sweden (approximately 276,000 inhabitants). The inclusion criteria for the recruitment of MRSA-colonized persons were MRSA diagnosis in 2010, age $\geq$18, living within the county and care experience due to the colonization. Eighteen persons met these criteria, and the first six patients who were invited agreed to participate (Table 1). The inclusion criteria for the recruitment of healthcare personnel (heads of department (HsD), first-line managers (FLMs), physicians and RNs) were employment within infection, hematology, nephrology or primary healthcare centers (PHCCs). These employment sites were selected for their increased risk of healthcare-associated infections from multidrug-resistant bacteria [17,18]. HsD have a legal responsibility to deliver care, and this responsibility can in part be delegated to FLMs, who have the formal responsibility of supporting medical and nursing professionals. Physicians and RNs have professional responsibilities in their

Table 1 Overview of invited individuals, characteristics of participants and stated reasons for not attending the scheduled interview.

	Invited[a]	Accepted (%)	Participants	Attrition
MRSA-colonized persons	6	6 (100%)	Five; Two men and three women aged 34—67 years. MRSA diagnosis 10-16 months before interview.	One man did not attend the interview due to lack of time.
Heads of department (HsD)	9 (1[b], 2[c])	6 (67%)	Four; Three RNs and one economist aged 35—51 from the medical and primary healthcare divisions.	Two HsD did not attend the interview due to that important work tasks took priority.
First-line managers (FLMs)	13 (3[b], 4[c])	6 (46%)	Five; all were RNs aged 40—51 from the unit for infection, the unit for nephrology and three primary healthcare centers.	One FLM did not attend the interview due to sickness.
Physicians	15 (7[c])	6 (40%)	Six; Two general practitioners, one hematologist, one nephrologist, one infection specialist and one resident in internal medicine aged 33—59.	None
Registered nurses (RNs)	10 (1[d], 3[c])	6 (60%)	Five; Two district nurses, one hematology nurse, one nurse in nephrology care and one nurse in infection care aged 32—55.	One RN did not attend the interview due to that important work tasks took priority.

[a] Numerals and letters in parenthesis indicate the number of and stated reasons to not participate in the study (two physicians did not state any reason).
[b] Resigning from the assignment.
[c] Lack of time.
[d] Participation in another study.

practiced roles. These four groups of healthcare personnel were included. The HsD and FLMs were recruited from a list of managers. The FLMs or co-workers recommended eligible physicians and RNs. Recruitment continued until six individuals from each healthcare personnel group agreed to participate because this was the recommended size for focus group interviews [19]. In total, 30 individuals accepted participation, but five of them did not attend the scheduled interview (Table 1).

Data collection

The data were collected using open-ended semi-structured individual interviews with MRSA-colonized persons and semi-structured focus group interviews with healthcare personnel. The focus group technique was not used with the MRSA-colonized persons, who found MRSA to be a sensitive topic and desired individual interviews. Each MRSA-colonized person was interviewed once by an experienced interviewer (ML) who had no involvement in their care. An interview guide was used to ensure that all of the MRSA-colonized informants were asked about their thoughts regarding interactions with and information from healthcare personnel, their view of their own and healthcare personnel's responsibility for infection prevention and to give examples of such situations. Clarifying questions such as ''can you explore that'' were used when needed. The individual interviews lasted for approximately 30 min.

Four single-session occupation-specific focus group interviews were conducted with healthcare personnel by a facilitator (ML), who introduced the purpose and the topic and encouraged the participants to talk, comment and pose questions to one another. The facilitator had minimal involvement but guided the discussions to maintain the focus on the topic. An assistant (BS), who had

experience with group interviews, took field notes. The question areas were the same as in the individual interviews, complemented with vignettes that included MRSA-colonized persons' statements about experiences of interactions with healthcare personnel [11]. The question areas were tested on three healthcare personnel and were judged to be relevant and feasible. The respective focus group interview sessions lasted approximately 60 min and were discussed by the facilitator and the assistant after they had ended. All of the interviews were carried out at the local hospital between February 2011 and June 2011. They were digitally recorded and transcribed verbatim.

Data analysis

The inductive qualitative content analysis was initiated during the data collection phase and conducted in Swedish. Field notes were used to facilitate the analysis of the focus group interviews [19], i.e., the tone and context of comments and specific group dynamics. The content analysis concepts that were used were handled as suggested by Graneheim and Lundman [20]. The transcripts were read and re-read to achieve an understanding of the text. The key findings were highlighted, condensed and assigned a code to capture the essential elements in the text by using a word or a sentence. The codes were compared for differences and similarities and abstracted into categories. To identify the underlying content of the text, all of the transcripts were re-read and three sub-themes that integrated the content of the interviews were formulated, named and interpreted in a theme [21]. The transcripts were re-read to identify and select excerpts to illustrate the findings. The analysis was performed as a dynamic process and continuously discussed by the authors.

Ethical considerations

The research conformed to the ethical principles defined in the Declaration of Helsinki. The Regional Ethical Review Board approved the study protocol (Reg. no. 2010/215). Confidentiality was assured, and written informed consent was obtained from all of the participating MRSA-colonized persons. The facilitator had a professional relationship with some of the participating healthcare personnel. The listed authors are those entitled to authorship, according to ICMJE uniform requirements for manuscripts.

Results

The analysis resulted in the theme ''Colonized persons' and healthcare personnel's understanding of MRSA determines whether personnel's behavior is perceived as proper or improper'', which represents three sub-themes: ''MRSA is an indefinable threat'', ''A responsibility that is important to assume'', and ''Adherence is a neglected and negotiable issue''. For an overview of the theme and sub-themes, see Fig. 1.

Theme	**Colonized persons' and healthcare personnel's understanding of MRSA determines whether personnel's behavior is perceived as proper or improper.**		
Subtheme	**MRSA is an indefinable threat**	**A responsibility that is important to assume**	**Adherence is a neglected and negotiable issue**
Category	# The fear of MRSA [HFRM] # MRSA is a threat [HR] # MRSA is indefinable [PRM] # MRSA is nothing you talk about [M]	# The need for hygiene to always be a topic of concern [HFPRM] # Patients and healthcare personnel are responsible for preventing contagion [M] # Identified responsibility in preventing contagion [HFPRM] # Skilled and responsible patient-professional interactions [PRM] # Approaches focusing on improvement of patient-professional interactions [HFR]	# Difficult and insufficient responsibility in hygiene work [HFPRM] # A wish to adjust hygiene routines to different care specialties [P] # Knowledge and experiences have an impact on behavior [HFPR] # Lack of knowledge among healthcare personnel [M] # Unprofessional encounters and inadequate information from healthcare personnel [M] # Difficulties in information provision [FR] # Structural and cultural deficiencies [HFPR] # Difficulties maintaining a low prevalence of MRSA in Sweden [PRM]

Figure 1 Overview of the categories, sub-themes and theme revealed during the analysis of the MRSA-colonized persons' and the healthcare personnel's experiences of patient–professional interactions and responsibilities for infection prevention in the care of MRSA-colonized patients. Letters H, F, P, R and M indicates in which group of participants respectively category was revealed. [H]Heads of department, [F]first-line managers, [P]physicians, [R]registered nurses, [M]MRSA-colonized persons.

In the sub-themes described below, the first paragraph contains summary descriptions of the MRSA-colonized persons' (also called persons) experiences followed by an excerpt. The experiences of the HsD, FLMs, physicians and RNs are then presented, which are followed by an excerpt illustrating the group conversation. In the excerpts, the participants are identified by their group belonging and a number, e.g., (RN1). The participants who did not express their thoughts confirmed the ideas of others by nodding their head or murmuring.

MRSA is an indefinable threat

Uncertainties were expressed as to whether the MRSA-colonized persons were contagious. Previous cultures were negative, but they still had to take new cultures because the contagion could be latent. Some individuals blamed the contagion on healthcare personnel, while others thought they had caught the infection from a friend or relative, but they all reported not knowing for certain how they acquired MRSA. A perceived unexpressed fear among friends and healthcare personnel, and the notion that friends distanced themselves, led to feelings of being disgusting. A fear that their children would be noted as ''the one with the contagion'' was expressed, and the individuals did not openly talk about the contagion.

...We wonder how long you have to test negative before they like write it off, he's going to start daycare soon and they were forced to inform the daycare people and even if it's kids there it can't be so hard to figure out who it is... now somebody's starting here who has...

(MRSA-colonized person (M)5)

The HsD, FLMs and RNs concluded that procedures that occur infrequently, such as taking care of a MRSA-colonized patient, cause fear and feelings of insecurity among healthcare personnel. The physicians reported that, in most cases, they are unable determine how the patient contracted the bacteria. The HsD and RNs discussed the complexity of MRSA; relatives of MRSA-colonized persons sometimes display fear of and anxiety regarding MRSA, and some patients think it is a life threatening illness, while others deny having it because they do not feel ill or have symptoms.

FLM1: ***when you have to do things you usually don't do it's then you're*** (FLM4: *yes*) (FLM5: *it's then you're afraid*) ***afraid and show your like*** (FLM3: *yes*) ***unprofessional side that's how it is it shows pretty quick*** (FLM2: *yes*)

A responsibility that is important to assume

The MRSA-colonized persons stated that the personnel working in infection care, at child welfare centers or in dental care were more professional in their patient—professional interactions than the personnel they encountered at the PHCCs. The infection specialists were judged to be good at explaining things and providing individualized information. The persons expressed a need for preventive measures to be carried out and expected that the infection control personnel would assume responsibility for stopping the spread of infection. Cleanliness was regarded as the most important; requests were made that rings not be worn by healthcare personnel and that specific rooms for persons with infections be reserved at the PHCCs. They claimed that the responsibility for infection prevention should be assumed by healthcare personnel and patients, as a personal responsibility, but the personnel have a greater responsibility to inform patients about prevention. The MRSA-colonized persons adhered to restrictions to prevent the spread of bacteria and showed their MRSA card or verbally informed personnel about their colonization. Always having to inform the personnel about MRSA made them feel like they were marked as contagious, i.e., MRSA became their identity, and for this reason they avoided contact with healthcare personnel. To limit the spread of infection, they were careful about hand hygiene, sat still and did not touch things in contact with healthcare personnel. Some reported only contacting healthcare when absolutely necessary. They acknowledged the need to monitor the prevalence and spread of infection, although this could be problematic because people can be carriers without realizing it.

...they have to assume great responsibility for infection prevention... they have to take it into consideration when they well... do what you do at a hospital examinations treatments or whatever and well in my case I have to disclose that I have MRSA or show them the card I got... and then afterwards the personnel have to act too (M1)

The physicians and RNs talked about their duty to be responsible for their own professional approach and said that they assumed this responsibility. The physicians declared their duty to evaluate case for the possibility of treatment. All of the healthcare personnel expressed that the improvement of personnel's patient—professional interactions

in relation to infection control measures was essential. The HsD reported having focused on patient–professional interactions during the past year and described, as did the FLMs and RNs, how routines were developed and implemented within the organization to prevent the spread of infection and the misuse of antibiotics. The HsD, FLMs and RNs articulated an explicit need for assuming the responsibility for infection control measures at all organizational levels, i.e., professionals, managers and politicians. The HsD discussed strategies to improve personnel's knowledge of the importance of infection control. The physicians and RNs discussed how to maintain the low prevalence of MRSA in Sweden.

(RN1: *the thing is we have to follow our routines*)... RN2: ***yes but with sensitivity and respect*** (RN4: *right*) ***that's how we always have to treat*** (RN3: *right*) (RN5: *yeah*) ***whatever it is that's wrong or whatever problem*** (RN1: *there really isn't any difference*) ***if you show sensitivity and respect then you see the entire patient*** (RN3: *yes*) ***and do what's best based on the routines we have and in relation to the patient's wishes***

Adherence is a neglected and negotiable issue

The MRSA-colonized persons described how encounters with healthcare personnel sometimes made them ''feel like they had the plague''. They reflected on how they would have received the information about the colonization had they been informed differently because the information provided by the personnel at the PHCCs was considered inadequate. The persons felt that healthcare personnel were sloppy, especially while under stress. They felt that the healthcare personnel were negligent, had inadequate knowledge of MRSA, and needed further training in infection control. Some healthcare personnel exaggerated the use of protective clothing, looking like they were ''ready for a trip into outer space'', while others gave an impression of discomfort. They considered that MRSA precautions should not be such a major issue because the healthcare personnel are supposed to adhere to hygiene precautions in their daily practice.

...I wonder about all the bacteria that ended up.... on the furniture, where did they go because I was sitting there with festering... on the beds and they were in there digging around and weren't at all careful about where they put things... it's not so surprising that it spreads in healthcare environment (M2)

The HsD, FLMs, physicians and RNs discussed the importance of having knowledge and experience with MRSA. The HsD concluded that patient–professional interactions in relation to MRSA colonization would be enhanced if healthcare personnel had more knowledge. They felt that healthcare personnel's reactions influence patients' feelings of discomfort when receiving information about colonization. The FLMs noted the healthcare personnel's inability to ensure that patients understand the information given, a claim supported by the RNs, who further stated that it is difficult to provide the information to patients. The physicians and RNs described the difficulties in assuming responsibility for hygiene precautions, and the FLMs reported difficulties in maintaining hygiene work because they had other work tasks of higher priority. The physicians called for hygiene precautions to be adapted to different care specialties, and discussed how hygiene precautions at the PHCCs do not need to be as rigorous as in acute care settings because of the different patient populations. The HsD and FLMs claimed that the healthcare personnel do not assume sufficient responsibility for infection prevention because adherence to hand disinfection was higher after patient contact than before patient contact. According to them, the healthcare personnel's behaviors are focused on protecting themselves, and not the patients, from the contagion. The HsD, FLMs and RNs reported that physicians had the poorest adherence to hygiene precautions. All of the groups discussed organizational shortcomings, such as patient privacy, the problem of overcrowded hospitals and the quality of care. The physicians were troubled by some colleagues' poor attitudes; for example, X-rays are sometimes not prioritized in MRSA-colonized patients because of the risk of infection spread.

Physician (P)5: ***I understand of course if a patient arrives who's been on the infection ward or on the surgery ward for three weeks*** (P2: *yes*) ***who's in generally bad shape that you have to have a more careful attitude but I think it's difficult in this more normal contact with people who see the doctor once a year to check their blood pressure*** (P1: *but at the level of disinfecting my hands between patients I think I maintain that anyway*) ***yeah*** (P2: *I understand what you mean it depends on how ill the patients you work with are*) ***right that's what I mean then we work in extremely different environments concerning a***

large proportion of our clientele (P6: *you have to adapt a bit to where you are*) ***yeah*** (P3: *but still you have to have a lowest level that's acceptable*) ***yes*** (P2: *right*)

Discussion

The participants perceived MRSA as an indefinable threat and described that the responsibility for infection prevention is important to assume, but such adherence was a neglected and negotiable issue. The result was interpreted as the theme ''Colonized persons' and healthcare personnel's understanding of MRSA determines whether personnel's behavior is perceived as proper or improper''. The described actions that were acknowledged as unprofessional and inappropriate adherence to infection prevention are matters of concern in the care of MRSA-colonized persons. Healthcare personnel who neglect or negotiate hygiene guidelines and fail to reflect on them in their patient—professional interactions can cause patients to feel stigmatized. The threat of the bacteria and unawareness of the consequences of one's own actions and others' actions must be considered in efforts to improve safety for MRSA-colonized persons and healthcare personnel.

The MRSA-colonized persons' and the healthcare personnel's responses and reflections were in agreement, but they all described situations of mistreatment or feelings of disgrace in the context of care procedures. The FLMs and RNs reported that uncertainty about MRSA colonization entailed a strain that was difficult to manage when giving patients individualized information [11,12]. According to the physicians, the insecurity that the MRSA-colonized persons felt might be associated in part with the impossibility of determining how the bacteria were contracted. Inadequate patient—professional interactions in relation to MRSA colonization were found to influence the patients' experiences of care, and the MRSA-colonized persons did not contact healthcare unless it was absolutely necessary because they felt that MRSA had become their identity. This could be considered stigmatizing because they felt that the healthcare personnel's (non)professional approach had caused them to feel disgusting [11—13].

The HsD, FLMs, physicians and RNs discussed the importance of knowledge and experience with MRSA in achieving optimal patient—professional interactions. This constitutes a dilemma in the present setting because it is acknowledged that healthcare personnel have deficient knowledge of MRSA [9,10]. There is a limited ability to gain experience of such care because of the low prevalence of MRSA in Sweden [4]. One concern in relation to this dilemma is that MRSA-colonized persons are stigmatized when the healthcare personnel follow guidelines and routines and when the personnel actually act incorrectly in patient—professional interactions. There is a need for structural support in the healthcare setting, and such support involves competent and participating managers and healthcare personnel [14,22].

Healthcare personnel's adherence to hygiene precautions could depend on how the personnel interpret the guidelines [9] or on their attitudes toward adherence to the hygiene precautions [10]. All of the participants felt that they did assume responsibility for infection control and tried to adhere to the hygiene precautions. The MRSA-colonized persons thought the situation would be improved by training healthcare personnel in infection control [1]. According to the physicians, the hygiene precautions at the PHCCs did not need to be as stringent as in acute care settings because of the different patient populations. The MRSA-colonized persons saw non-stringent adherence to the hygiene precautions as sloppiness, especially when the personnel were under stress, which is a factor that strongly affects the rigorousness of individual healthcare personnel's precautions in relation to MRSA [23]. The need to assume responsibility for infection control at different organizational levels — including professionals, managers, politicians, and patients — was described as a joint responsibility [14,22]. Such joint responsibility for infection control could be improved because the prevalence of multidrug-resistant bacteria is increasing [2,7]. To further explore infection control behavior in patient—professional interactions, participant observations, including reflective discussions, could be performed to develop the healthcare personnel's awareness of the importance of evidence-based practices, although such an intervention would be costly.

Methodological considerations

To improve the rigor of the study regarding aspects such as the researchers, design, analysis, and reporting, the COREQ checklist [15] was used. The aspects of trustworthiness, i.e., credibility, dependability and transferability, are well described [20]. A limitation in the data collection method employed was that the participants were not asked for their own opinions on what elements of the discussion they found most important [19]. The potential risk of bias due to the facilitator's

professional relationship with some of the participants was present in all of the focus group interviews, as the infection unit was included as a care specialty. This was dealt with through the use of voluntary participation and a passive approach on the part of the facilitator. In the respective focus group interviews, all of the participants seemed engaged and acknowledged each other in the conversations. It was challenging to illustrate the healthcare personnel's group conversations [19]. As the difference between espoused and actual practices [24] is acknowledged, vignettes [11] were used to reduce potential socially desirable responses [16] from the healthcare personnel. The interviews with the MRSA-colonized persons could be interpreted as short, but the studied area was well defined, and the interviews were consistent. The researchers considered the data to be saturated [16] because no new information was identified in the last two interviews with MRSA-colonized persons.

Conclusion and clinical implications

Colonized persons' and healthcare personnel's understanding of MRSA determines whether the personnel's behavior is perceived as proper or improper. Individual responsibility for patient—professional interactions in relation to MRSA-colonization and adherence to infection control measures should be more stringent.

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Competing interests

None declared.

Ethical approval

Not required.

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